

NATIONAL MARINE FISHERIES SERVICE

UNITED STATES DEPARTMENT OF COMMERCE

**2000 PROGRESS REPORT TO THE NATIONAL
MARINE FISHERIES SERVICE IN PARTIAL
FULFILLMENT TO GRANT # NA66FZ0469
FOR THE MEXICO / UNITED STATES OF AMERICA
POPULATION RESTORATION PROJECT FOR THE
KEMP'S RIDLEY SEA TURTLE**



GLADYS PORTER ZOO

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Presented by:

Patrick M. Burchfield

U. S. Field Group Coordinator

INTRODUCTION

Over the last twenty-two years, the Mexican and U.S. biologists working with the Kemp's ridley sea turtle have learned a lot about the biology of nesting sea turtles. When the project began, it basically was at ground zero. We now know that although some turtles nest in subsequent seasons, the majority of them nest every other year. We know that each female nests on average from 2.6 to three times per female per season, laying a clutch of one hundred or so eggs which require from forty-two to sixty-two days incubation depending on the temperatures.

We have now verified turtles which were originally tagged on the Eastern seaboard of the U.S. as having returned to Mexico to lay their eggs. We have recorded experimentally head-started turtles nesting on Padre Island National Seashore, USA, and the same turtles at Rancho Nuevo in Mexico during the same nesting season. Apparently, the experimentally imprinted head-started turtles were able to navigate to Padre island National Seashore and were also able to socially facilitate with wild ridleys returning to the Tamaulipas coastline's historic nesting grounds.

Normally, the Kemp's ridley or "tortuga lora", begins nesting around the second week in April, but since 1998, they began nesting in March. The first Kemp's ridley nest of the 2003 nesting season was recorded on March 29. Mild winters with unseasonably warm water temperatures may facilitate this reproductive readiness and subsequent egg laying by the turtles.

Kemp's ridley turtles will return to nearly the same spot on the beach where they nested in previous seasons, however, if they are disturbed, they possess the behavioral "plasticity" to move several kilometers up or down the beach to a new nest site.

In past years we were unaware that a few “loras” will and do nest at night even though the norm for this species is diurnal (or daytime) nesting. Our first beach patrol or “recorrido” as it is called in Spanish, began at 8:00 am C.S.T. for years and years and that was early enough to find the first nesting turtles of the day. Two years ago, our first beach patrol began encountering crawls (tracks) and nests which were apparently from late in the afternoon of the previous day or perhaps from the night time or early morning hours. The first “recorrido” kept being moved to an earlier and earlier hour and eventually turtles were found nesting at 5:30 am during the cover of darkness. Needless to say, this has caused us to readjust our thinking and our patrol schedules. It is critical to our effort to see as many turtles as is humanly possible given the constraints of manpower and equipment. We have to actually encounter the turtles in order to check for tags or tag returns, or to tag the turtles, and to determine interesting intervals. This tagging information also helps us to know how often the individual turtle nests each season, the fertility rate of the eggs, the nest site fidelity and an entire suite of other data.

The scope of the project this year was essentially the same as in preceding seasons. The United States field assistance group, the INP and Tamaulipas' State Government crews, under the supervision of trained sea turtle biologists aided in beach patrols ("recorridos"), tagging turtles with monel metal tags in the trailing edge of the left foreflipper, and passive integrated transponder ("PIT") tags were also injected into the muscle tissue through the dorsal side of the foreflipper. 2,120 monel metal tags were applied on nesting females and 1,367 specimens were tagged with "PIT" tags. Relevant data were recorded; subsequently, most of the egg clutches were translocated to facsimile nests within protective corrals.

This season, 6,182 nests were protected, 5,845 in corral, 134 in Styrofoam boxes and 203 *in situ* for a total of 590,055 protected eggs. 395,150 hatchlings were released from the coasts of Tamaulipas and Veracruz into the Gulf of Mexico.

We are beginning to see an increase in the number of ridleys nesting on their historic nesting sites, but nesting aggregations (arribadas), now number in the two or three hundreds, not the thousands which are necessary for the species to survive without man's intervention. This season, the biggest aggregations occurred in the Rancho Nuevo area in the course of six days (May 12 to May 17), with a total of 1,326 nests recorded. We are going in the right direction but we cannot diminish our present effort if we are to succeed.

PROGRESS REPORT ON THE MONITORING OF MALE KEMP'S RIDLEY BY SATELLITE TELEMETRY - 2000

This project was initiated by Dr. Richard Alan Byles, former National Sea Turtle Coordinator for the U.S. Fish and Wildlife Service in cooperation with Mr. Phil Williams of the National Marine Fisheries Service. Dr. Byles is an internationally recognized expert on sea turtle satellite tracking.

On 30 September 1997, Dr. Byles invoiced the Gladys Porter Zoo in the amount of \$8,760.00 to initiate the field study. This invoice was paid on October 30, 1997 with our Valley Zoological Society check number 1894.

Enclosed is a summary of financial expenditures for the field work as it has been related to our office by Dr. Byles.

On January 1, 1998, Dr. Byles invoiced the Gladys Porter Zoo for the sum of \$10,990.00 to complete the study entitled "Monitoring Male Kemp's Ridleys from Rancho Nuevo by Satellite". This invoice was paid by the Gladys Porter Zoo (Valley Zoological Society) on February 25, 1998, with check number 1921.

An expense and budget sheet as submitted to the Gladys Porter Zoo by Dr. Byles is also enclosed. All of the funding awarded to the Valley Zoological Society, Gladys Porter Zoo, has been invoiced and paid in good faith to Dr. Byles.

If any of your financial personnel need to discuss this matter with Dr. Byles in more detail he can be reached directly at (757) 868 - 0366.

Up until late August of 1999, Dr. Byles was unsuccessful in his attempts to capture male Kemp's ridleys to attach satellite transmitters. However, even though the grant funding had been fully expended, the Kemp's ridley project personnel at the Gladys Porter Zoo felt that this work constituted a critically important component in our understanding the life cycle of the world's most endangered sea turtle. Important information relative to critical habitat feeding and breeding grounds can be learned. Accordingly, the Gladys Porter Zoo continued this work at our expense, and on May 25, 2000, the last satellite transmitter was deployed successfully. Relevant data were recorded on all males and they were tagged with a metal flipper tag and a passive integrated transponder (PIT) tag. Submitted is an itemized expenditure sheet up to December 19, 1999 for your perusal and progress reports by the personnel directly involved in this project.

This work could not have been done without the help of local fishermen at Barra del Tordo. Instrumental to the completion of the satellite-tagging of the male ridleys was Hector Javier Martinez Ortiz, field crew leader for the US contingent of the Kemp's ridley bi-national project. His skills, both as a field biologist and contact person with the local fishermen were key to this project

KEMP'S RIDLEY MALE SEA TURTLE SATELLITE TELEMTRY
GLADYS PORTER ZOO PROJECT EXPENSES
NON NMFS FUNDING FOR CONTINUATION OF THE RESEARCH

A detailed list of expenditures follows:

(From April 15 to August 10, 1999)

Consultant in Mexico:

Biologist Gustavo Hernandez Molina

Consulting Fees:

\$600.00/month for four months: \$2,400.00

Food budget:

\$210.00/month for four months: \$840.00

Travel expenses (ie. gas for the truck to go to Aldama for supplies):

\$80.00/month for four months: \$320.00

Truck maintenance:

\$30.00/month for four months: \$120.00

Importation fee for truck into Mexico:

\$11.00

Vehicle insurance in Mexico:

\$1,200.00

Other travel expenses (ie. trips from Brownsville to Barra del Tordo to take nets, supplies, etc.):

\$100.00/trip for four trips: \$400.00

Boat trip expenses:

Boat rental fee \$45.00/trip for 32 trips: \$1,440.00

Gas for boat \$30/trip for 32 trips: \$960.00

Boat maintenance (oil, spark plugs, etc.) \$5.00/trip for 32 trips: \$160.00

Incentives for fishermen funds:

\$150.00

Total Expenditure for this period:

\$8,001.00

(From August 10 to December 19, 1999)

Consultant in Mexico:

Hector Martinez

Consulting Fees:

\$450.00/month for five months: \$2,250.00

Food budget:

\$210.00/month for five months: \$1,050.00

Travel expenses (ie. gas for the truck to go to Aldama for supplies):

\$80.00/month for five months: \$400.00

Truck maintenance:

\$30.00/month for five months: \$150.00

Incentives for fishermen funds:

\$1,000.00

(Mr. Martinez is still in possession of \$300.00)

Total Expenditure for this period:

\$4,850.00

Gladys Porter Zoo Total Expenditure:

\$12,850.00

INTERIM REPORT CONTINUED FOR 1999 / 2000 SEASON
Satellite Monitoring of Male Kemp's Ridleys from Rancho Nuevo
Beginning August 10, 1999 through May 25, 1999

Date	Location	Metal tag	PIT tag	Transmitter #
081199	Barra del Tordo	BB-449	4077265C2C	7660
081899	Barra del Tordo	FB-147	4077021226	7672
090199	Barra del Tordo	FB-368 <i>(found dead in Tampico on December 31, 1999)</i>	4077142A1A	7674
090999	Barra del Tordo	FB-362	407A3C2400	7662
112899	Barra Carrizo	FB-363	4077577F36	7661
121899	Barra del Tordo	FB-364	40773B194F	7682
121999	Barra del Tordo	FB-365	4077343A73	7683
011200	Barra del Tordo	FB-366	40773D645F	7670
011200	Barra del Tordo	FB-367	4077410A0C	7671
041500	Barra del Tordo	KA-715	Data not available	7669
052500	Barra del Tordo	KA-716	Data not available	7674b

Transmitter #	Curved Carapace Length (cm)
7660	67.0
7672	67.1
7674a <i>(found dead in Tampico on December 31, 1999)</i>	69.5
7662	62.0
7661	65.3
7682	65.8
7683	62.4
7670	66.5
7671	66.0
7669	68.4
7674b	60.0

Submitted May 30, 2000. Hector Javier Martinez Ortiz

Shaver, D., Burchfield, P. M., Byles, R. A., Marquez, R., Martinez, H. J., Peña, L. J., 2001. Satellite Monitoring of Male Kemp's Ridley off of Coastal Tamaulipas, Mexico.

Abstract

Movements of 11 adult male Kemp's ridley turtles (*Lepidochelys kempii*) were monitored using satellite telemetry between 1999 and 2001. Turtles were captured near Rancho Nuevo, Tamaulipas, Mexico, outfitted with ST-14 satellite transmitters, and released there. For various transmitters, locations were obtained from 73 to 233 days and transmissions were received from 89 to 453 days. Transmission duty cycles of 8 hours on/52 hours off and 6 hours on/6 hours off were compared; using the cycle of 8 hours on/52 hours off did not extend the tracking period and resulted in fewer locations. Most identified locations were in near-shore waters, in 37 m (20 fm) water depth or less. One of the 11 traveled northward and was last located offshore from Galveston, Texas, USA. The other 10 remained within waters off Tamaulipas, Mexico. Eight of those 10 moved multi-directionally, primarily within core areas, and the other two moved primarily linearly. In contrast to previous findings for adult female Kemp's ridley turtles, a large proportion of the adult male Kemp's ridley population may reside offshore from nesting beaches year-round. Effective at-sea protection and management of adult Kemp's ridley turtles should incorporate considerations regarding year-round residency of males.

Introduction

In the late 1970's and early 1980's, interviews with local fishermen and ranch workers conducted by one of the authors (P. Burchfield), revealed that several individuals had observed Kemp's ridley sea turtles during the winter months in the waters off of the fishing villages of La Pesca and Barra del Tordo. Further inquiries over the ensuing years continued to result in sustained similar reports including several observations of copulating pairs during the months of October through March. This essentially corresponds to the months in between nesting seasons. Earlier satellite telemetry studies of post-nesting females (Byles, 1989 and Burchfield, et al., 1990), indicated that upon completing their nesting cycle, females migrated south to the Bay of Campeche as well as to the east and western coasts of the Yucatan Peninsula feeding grounds. Some specimens migrated north to the Texas coastline.

The reported presence of post-nesting season ridleys in the waters off of the nesting beach in the La Pesca and Barra del Tordo areas posits some interesting questions. First and foremost, are these females and males resident? Or have these females migrated from other feeding grounds and going to nest in the proximate nesting season? All of the previously monitored females departed the area following nesting to move on to feeding grounds. This might well relate to females which nested two or three years earlier and which are now reproductively ready from a nutritional standpoint. Second, persisting reports in the winter months of copulating pairs of ridleys or "tortugas loras" as they are called in Mexico, clearly indicates that there are at least some males resident in the area during this time interval. Virtually nothing is known of the migratory patterns or lack thereof, for adult male Kemp's ridleys. Any strategy to recover this species must include data on where, when and what half of the adult breeding population is doing. Aerial surveys have not been particularly successful inasmuch as the waters of the western Gulf of Mexico are turbid much of the time and a further confound is that Kemp's ridleys are wary and dive upon the approach of an aircraft.

This study was a beginning point for further study of the migratory or non-migratory patterns of adult male Kemp's ridleys. The small sample size of this study only intensifies the need for further study not only of males but also females habituating waters off of the nesting beach during the seasonal interesting interval.